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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,384	04/06/2005	Frank Neumann	HH 304-KFM	4881

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EXAMINER

NDUBIZU, CHUKA CLEMENT

ART UNIT	PAPER NUMBER
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3749

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/530,384	Applicant(s) NEUMANN ET AL.	
	Examiner Chuka C. Ndubizu	Art Unit 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on through 11/27/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-3, 7-12 and 14-21 is/are rejected.
- 7) ☐ Claim(s) 4-6, 13 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>62905</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Specification***

The abstract of the disclosure is objected to because this application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required. See MPEP § 608.01(b).

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show "register type arrangement 30" as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

1. Claims 4-6, 13 and 22 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative

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only. See MPEP § 608.01(n). Accordingly, the claims 4-6, 13 and 22 have not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1, 3, 9, 10 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Deakin 5,167,218. Deakin teaches the invention as claimed (see figs. 2-11) a solar collector comprising, a sheet metal panel (17), a register-shaped arrangement (Fig 4) of capillary tubes (16, 57 in fig 11) separated from one another at a distance for the flow of a fluid medium (column 7 line 30-33) that lies on the side opposite the side of the sheet metal panel (17) to be irradiated (column 2 line 44,45), and a thermally insulating insulation core (11) that is also positioned on the rear side; wherein the capillary tubes of the register-shaped arrangement are placed in contact with the surface (18 in fig 4) of the thermally insulating insulation core, and the thermally insulating insulation core is bonded to the sheet metal panel (column 5 line 49-52) by means of an elastic adhesive layer (21, 23), whereby capillary tubes are at least partially embedded into the adhesive layer 21 between the sheet metal panel 20 and the insulation core (11 see fig 5); wherein each of the capillary tubes of the register-shaped arrangement is placed into a slot (25 in fig 5) worked into the insulation core (11), whereby the capillary tubes extend

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above the insulation core by some amount; wherein the surface of the insulation core is flat, and that the capillary tubes are laid directly onto the flat surface (column 7 line 29, see fig 3); wherein the slots (18, 25) possess a partially-round, cross-section (figs 4 and 5); wherein the capillary tubes consist of metal (aluminum and copper column 3 line 56, 57); wherein the side of the insulation core facing away from the sheet metal panel is supported by a plate-shaped stiffening element (4); wherein the insulation core is partially surrounded by a cassette (4) which includes two opposing margins (side of 4 fig 4) angled outwards.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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3. Claims 7, 8, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deakin in view of Bloor et al 4,606,327. Deakin teaches the invention as claimed and as discussed above. Deakin also teaches a solar collector wherein the adhesive layer comprises, sodium silicate and aluminum oxide (column 4 line 51,52) and these will have a higher thermal-conductivity coefficient than the material of the insulation foam (column 4 line 67); wherein the adhesive layer (21,23) is formed of an adhesive based on polyester resin (column 4 line 14).

However, Deakin does not teach a solar collector wherein the surface of the insulation includes numerous recesses to receive the adhesive; wherein the recesses extend essentially to the slot depth or extend slightly past it.

Bloor discloses a solar collector (fig 1) wherein the surface of the tiles (11) (insulation) includes numerous recesses 14; wherein the recesses extend slightly past the depth of the slot 15.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Deakin's solar collector by including all the limitations taught by Bloor and recited above in order to provide a solar collector that would be quickly mounted on roof tops with little damage to the roof as taught by Bloor (column 1 line 28-30).

Deakin discloses the use of polyester resin and not specifically methacrylate. Methacrylate is a polyester resin and the selection of methacrylate is an obvious engineering choice. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960. MPEP 2144.07.

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4. Claims 2, 14, 15, 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deakin in view of Graham 4,517,721. Deakin teaches the invention as claimed and as discussed above. Deakin also teaches a solar collector wherein the insulation core (11) is partially surrounded by a plastic or metal cassette; (4, column 5 line 4, 5). However, Deakin does not teach a solar collector wherein the capillary tube extends by an amount, which essentially corresponds to the thickness dimension of a fluid adhesive layer before hardening; wherein the sheet metal panel is of one piece with two opposing angled edge profiles to connect the sheet metal panels to one another in a folded technique; wherein an elastic body is positioned between the angled margin; wherein the elastic body is a foam strip.

Graham discloses a solar heat exchanger (fig 1-7), comprising a one-piece sheet metal plate (10) with two opposing angled edge profiles (see fig 7); wherein an elastic body (13) is positioned between the angled margin; wherein the elastic body (13) is a foam strip (rubber).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Deakin's solar collector by including all the limitations taught by Graham and recited above in order to provide a solar heat exchanger that can be manufactured economically as taught by Graham (column 1 line 25)

With regard the recitations "to connect the sheet metal panels to one another in a folded technique" in claim 15 and "to receive the adhesive" in claim 11, these are regarded as statements of intended use and therefore these limitations are given no

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patentable weight. *In re Otto*, 312 F.2d 937, 938 136 UPSQ 458, 459 (CCPA 1963). MPEP 2111.02 II.

With regard to the recitation "capillary tube extends by an amount, which essentially corresponds to the thickness dimension of a fluid adhesive layer before hardening", this limitation is regarded as a design choice since the applicant does not disclose any criticality for limiting the amount the tube should extend. In Deakin's invention the tubes extend enough such that the adhesive can hold the plate and the collector is functional. This limitation is therefore given no patentable weight.

5. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deakin in view of Hyman 4,191,169. Deakin teaches the invention as claimed and as discussed above. Deakin also discloses a sheet metal plate made of aluminum (column 3 line 54, 55). However, Deakin does not teach a solar collector wherein the sheet metal panel consists of a titanium-zinc alloy; and wherein the collector possesses an overall thickness, including insulation core, of between 10 mm and 50 mm, preferably between 25 mm and 35 mm.

Hyman discloses a solar collector wherein the insulator thickness is of the order of 3 inches (75 mm) (column 4 line 18). Since the metal absorber is very thin (order of 0.1 mm (Deakin column 3 line 56)) the overall thickness of the collector is of the order of 75 mm. 50 mm is of the order of 75 mm. Therefore, the limitation that the thickness be between 10 and 50 mm is deemed an obvious optimization within prior art conditions. "where the general condition of a claim is disclosed in prior art, it is not inventive to

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discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) MPEP 2144.05 II A.

With regard to the sheet metal being made of titanium-zinc alloy, this is deemed an engineering design choice since the applicant does not disclose the need for using titanium-zinc alloy, which other materials cannot meet.

Conclusion

The prior art made of record in the attached USPTO 892 and not relied upon is considered pertinent to applicant's disclosure.

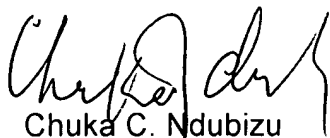
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuka C. Ndubizu whose telephone number is 571-272-6531. The examiner can normally be reached on Monday - Friday 8.30 - 4.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on 571-272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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